



Clinical and laboratory profile of Zika virus infection in dengue suspected patients: A case series



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ABSTRACT

Background: The Zika virus (ZIKV) is an emerging arthropod-borne virus related to the dengue virus (DENV), and shows a similar clinical profile as other arboviral diseases, such as dengue and chikungunya virus (CHIKV). Historically, ZIKV has been associated with sporadic cases of human infection, but is now responsible for outbreaks worldwide. In Brazil, cases have been reported since 2015, with some cases causing severe disease.

Objective: To identify clinical symptoms of Zika in patients in Dengue suspected patients.

Study design: Description of a series of cases, wherein we analyzed 100 clinical samples collected from patients who exhibited acute febrile disease for ≤ 5 days, from January to February 2016.

Results: In this study, we report 13 cases of ZIKV infection in adults presenting dengue-like symptoms in a DENV endemic area. All patients presented with fever, with myalgia being the second most frequently observed symptom. Two patients had rashes, but none of them had conjunctivitis. Other less frequent manifestations included headache, arthralgia, diarrhea, and nausea.

Conclusion: The co-circulation of ZIKV and DENV is a serious public health concern, since it represents both a clinical and diagnostic challenge in endemic areas, as well as in the field of travel medicine.

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1. Background

The Zika virus (ZIKV) is a positive-sense, single-stranded RNA virus belonging to the genus *Flavivirus* within the family *Flaviviridae*. It is closely related to other flaviviruses with public health relevance, including the dengue (DENV), tick-borne encephalitis (TBEV), and West Nile viruses [1]. Although *Aedes aegypti* is consid-

ered the main vector outside of the African continent, *A. albopictus* has long been suspected to also be a vector [2].

Isolated for the first time in Uganda in 1947 [3], ZIKV was initially thought to cause sporadic benign human infections in Africa and Asia [4]. However, after the first documented outbreak of ZIKV outbreak on Yap Island, Micronesia, in 2007 [5], there was another large epidemic in French Polynesia in 2013–14, before it spread throughout the Pacific. ZIKV is now considered to be an emerging arthropod-borne virus [4,6]. The first evidence of the autochthonous transmission of ZIKV in Brazil was reported in the northeastern region of the country, in May 2015 [7]. Although ZIKV infection has been typically associated with a relatively mild illness, an increase in the newborn microcephaly cases from the northeastern Brazilian states has suggested an association between ZIKV infection during pregnancy and fetal malformations. The presence of this arbovirus has become an important public health concern [8], particularly because of the co-circulation of DENV, an endemic

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Table 1
Signs, symptoms, and laboratory assays used to diagnose each patient's Zika virus infection, confirmed by ZIKV RT-PCR in serum, from January to February 2016, in the city of São José do Rio Preto.

Patient n (age)	Gender	Hospitalization	NS1 Antigen test	Dengue IgM	Dengue IgG	Signs, Symptoms, and Selected Laboratory Results
1 (76y)	Female	No	NP	Non reactive	Reactive	Clinical: fever, myalgia, headache, diarrhea Serum: Ht 40.1%; platelets 110,000/mm ³
2 (34y)	Female	No	Non reactive	NP	NP	Clinical: fever, myalgia, headache, retro-orbital pain. Serum: Ht 33.4%; platelets 156,000/mm ³
3 (23y)	Female	No	Non reactive	NP	NP	Clinical: fever, myalgia, headache, retro-orbital pain, arthralgia, mucosal bleeding. Serum: Ht 37.4%; platelets 208,000/mm ³
4 (41y)	Male	No	Non reactive	NP	NP	Clinical: fever, myalgia, headache, chills, arthralgia, TT negative. Serum: Ht 40.4%; platelets 211,000/mm ³
5 (25y)	Male	No	NP	Non reactive	Non reactive	Clinical: fever, myalgia, diarrhea, nausea. Serum: Ht 44.8%; platelets 201,000/mm ³ ; RCP 0.95 mg/dl; Cr: 0.9 mg/dl; X-ray normal
6 (43y)	Female	No	Non reactive	NP	NP	Clinical: fever, myalgia, nausea. Serum: Ht 33.6%; platelets 307,000/mm ³
7 (49y)	Female	No	Non reactive	NP	NP	Clinical: fever, myalgia, arthralgia. Serum: Ht 42.8%; platelets 145,000/mm ³ ; RCP: 0.2 mg/dl; Cr: 1.0 mg/dl; AST 32 U/l; ALT 60 U/l
8 (38y)	Male	No	Non reactive	NP	NP	Clinical: fever, diarrhea. Serum: Ht 40.3%; platelets 143,000/mm ³ ; RCP 8.94 mg/dl; Cr: 1.1 mg/dl
9 (40y)	Female	No	Non reactive	Non reactive	Non reactive	Clinical: fever, myalgia, headache, retro-orbital pain, exantema. TT positive. Serum: Ht 31.8%; platelets 224,000/mm ³
10 (67y)	Male	No	Non reactive	NP	NP	Clinical: fever, myalgia, arthralgia, headache, retro-orbital pain. TT negative. Serum: Ht 45.2%; platelets 175,000/mm ³ . Comorbidity: Hypertension.
11 (65y)	Female	Yes	Non reactive	NP	NP	Clinical: fever, headache, mucosal bleeding, abdominal pain. Serum: Ht 40.8%; platelets 275,000/mm ³ ; RCP 4.35 mg/dl; Cr 0.8 mg/dl; X ray normal; Abdominal CT normal; Comorbidity: Colon diverticular disease.
12 (19y)	Female	No	Reactive	NP	NP	Clinical: fever, myalgia, arthralgia, headache Serum: Ht 44.6%; platelets 165,000/mm ³
13 (49y)	Male	No	NP	Non reactive	Reactive	Clinical: fever, myalgia, exantema. Serum: Ht 39.6%; platelets 186,000/mm ³

*NP: not performed; TT: tourniquet test; RCP: reactive C protein; Cr: creatinin; CT: computed tomography.

arbovirus in Brazil. Moreover, as previously revealed in clinical data from the French Polynesian outbreak, ZIKV has the potential to cause neurological complications such as meningoencephalitis and Guillain-Barré syndrome [9].

2. Objectives

In this study, we report the laboratory and clinical profiles of adults presenting dengue-like symptoms who came to our emer-

gency health care facility from the city of São José do Rio Preto, located in the northwestern region of São Paulo State, Brazil. This region is considered endemic to the circulation of DENV and other arboviruses [10–12].

3. Study design

We analyzed 100 clinical samples from patients presenting with acute febrile disease for ≤ 5 days from January to February

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